

NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

Newfoundland.—St. JOHNS, February 6.—Railway and steamboat traffic have been abandoned owing to the severest midwinter conditions in Newfoundland for many years. * * * Tremendous ice floes are reported off the eastern coast and the Grand Banks, seriously impeding all ocean shipping.—*New York Herald, February 7, 1923.*

St. JOHNS, February 15.—Enormous quantities of ice between Nova Scotia and Newfoundland and extending to the Grand Banks were reported by the British steamship *Sachem*, which arrived from Halifax.—*Washington Times, February 15, 1923.*

St. JOHNS, February 24.—Because of the unusual ice blockade around the south coast of Newfoundland, which has prevented the movement of coastwise vessels, several settlements are short of food.—*New York Times, February 25, 1923.*

British Isles.—The weather generally was mild and wet. * * * The ground was muddy for more than half the month at most places, and at Valencia, Benson, and London was "wet" or "muddy" on every day. * * *

The general rainfall in the British Isles, expressed as a percentage of the average, was: England and Wales, 245; Scotland, 160; Ireland, 205; British Isles, 211.¹

France.—In southern France, * * * the beginning of the month was marked by a drought * * *

Portugal.—LISBON, February 11.—The whole Portuguese coast was littered with wreckage tonight following one of the worst storms in its history and great loss of life is feared among the fishing fleets. * * * Heavy rains

have flooded the rivers.—*Washington Post, February 12, 1923.*

Switzerland.—The heavy falls of snow reported in the Alps during January continued until the 3d, and the warm weather set great masses of snow in motion, causing avalanches, in which several lives were lost. On the 6th, there was a great landslide into the Davoser See.¹

Hungary.—BUDAPEST, February 12.—While a raging blizzard was halting the Simplon express, the Danube broke its embankments around Budapest, flooding the suburbs of Budapest and Kaposztasmagyer.

Eight thousand persons are homeless. * * * The bewildered population of the city has not experienced such an inundation since the great flood of 1830, when the town was practically swept away. * * *

The indications are that the flood has reached its height.—*Brooklyn Eagle, February 12, 1923.*

Arabia.—An unusually heavy rainstorm visited Aden on the 14th, giving a valuable supply of water.¹

Africa.—About the same time [14th] heavy rains visited Orange Free State, and, up to the 14th, the total fall for 1923 already exceeded the rainfall of the whole of 1922. * * * On the 25th the Zambesi was in flood, interrupting railway communication.¹

Brazil.—In Brazil rainfall was heavy in the north, including the dry northeastern region, averaging 85 mm. above normal. In central Brazil the fall averaged 36 mm. above normal, and in the south, exclusive of Rio Grande, 26 mm. above.¹

¹ *Meteorological Magazine*, March, 1923, pp. 44-45.

¹ *Meteorological Magazine*, March, 1923, pp. 44-45.

DETAILS OF THE WEATHER IN THE UNITED STATES.

GENERAL CONDITIONS.

By ALFRED J. HENRY.

The month was cold and dry, but only moderately so. The single feature which stands out prominently was the unusually high average atmospheric pressure, a result, largely, of the occurrence of a single great anticyclone whose center occupied the northeastern Rocky Mountain slope from the 14th to the 17th, inclusive. See track No. VIIIB of Chart 1. From that region offshoots appear to have been detached, one of which moved to Texas, another to the Great Basin and the last to the East Gulf States.

The deficient precipitation was due, in some measure, to failure of cyclonic systems to move inland from the Pacific, as well as to a lack of intensity in the systems which appeared in the Canadian Northwest or developed over the southern Plateau region.

CYCLONES AND ANTICYCLONES.

By W. P. DAY.

The anticyclones (HIGHS) outnumbered the cyclones (LOWS) during February. This was rather unusual, and due to the great magnitude of the air masses released from the polar cap, which frequently covered much of the country and shunted the LOWS beyond the limits of observation. One of these great high-pressure areas surged down from Alaska and the Mackenzie Valley on the 13th and with various reinforcements spread east-

ward and southward over the United States, virtually controlling the weather over the entire country until the 18th. The highest reported barometer reading was 31.18 inches at Miles City, Mont., on the 14th. After the departure of the North Pacific storm of the 11th-15th no low-pressure area was charted within the confines of the United States until the 18th, showing the complete dominance of this great HIGH.

| Cyclones. | Al- berta. | North Pa- cific. | South Pa- cific. | North- ern Rocky Moun- tain. | Colo- rado. | Texas. | East Gulf. | South At- lantic. | Cent- ral. | Total. |
|---|---------------|------------------------|------------------------|--|----------------|--------|---------------|-------------------------|---------------|--------|
| February, 1922... | 7.0 | 1.0 | ..... | ..... | 2.0 | 1.0 | 1.0 | ..... | 1.0 | 13.0 |
| Average number, 1892-1912, in- clusive..... | 3.1 | 2.3 | 1.0 | 0.2 | 1.5 | 1.5 | 0.5 | 0.2 | 0.7 | 11.0 |

| Anticyclones. | North Pacific. | South Pacific. | Al- berta. | Plateau and Rocky Moun- tain region. | Hud- son Bay. | Total. |
|--|-------------------|-------------------|---------------|---|---------------------|--------|
| February, 1922..... | 5.0 | ..... | 8.0 | 2.0 | 1.0 | 16.0 |
| Average number, 1892-1912, in- clusive..... | 0.8 | 0.5 | 4.7 | 1.2 | 0.6 | 7.8 |

FREE-AIR SUMMARY.

By L. T. SAMUELS, Meteorologist.

In direct contrast to the mean free-air temperatures for January, 1923, those for February fell, almost without exception, below their normal values. (See Table 1.)

It will be observed in the table that at Ellendale, the northernmost station, the negative departures remained practically the same in amount from the surface to the highest altitude. This persistence of large negative departures disappeared at the other stations in proportion to their distance from Ellendale. Thus at Groesbeck, farthest south the departures in the highest levels were positive (although extremely small), this being the only case of positive departures for the month. At this station previous minimum temperature records for February were broken during the first week in the month from the surface to 2,000 m. altitude, when a severe cold wave overspread this region.

The relative humidity for the month averaged close to normal for all stations and levels, the departures in nearly every case being less than 10 per cent. At Groesbeck the prevalence of positive departures for all levels was conspicuous.

The vapor-pressure departures were small and negative for all stations except Groesbeck where positive departures were found at all levels.

In Table 2 are shown the resultant wind velocities and directions together with the normal values. The high resultant velocities as compared with the normals generally, are noticeable and of interest. It is also apparent that in most cases the north component for the month exceeded the normal, thus showing the usual close connection with the negative temperature departures mentioned previously. The resultant direction for the month at Groesbeck is interesting because of the regular veering found with increasing altitude. This is well shown in the table, beginning at the surface with N. 40° E, then turning steadily clockwise to the 5,000 m. level when N. 45° W. is found, embracing three complete quadrants.

Gales were recorded on a number of occasions at various stations and altitudes. The following reported velocities of 40 m. p. s. or more. It must not be inferred, however, that equally high or higher velocities did not occur on other days during the month as well, but observations at those times were impracticable owing to low clouds, precipitation, etc.

| Station. | February. | Velocity. | Direction. | Altitude. |
|---------------------------|-----------|-----------------|------------|-----------|
| | | <i>M. p. s.</i> | | <i>M.</i> |
| Aberdeen, Md..... | 5 | 40 | WSW... | 1,400 |
| Fort Benning, Ga..... | 8 | 40 | W..... | 1,700 |
| Bolling Field, D. C..... | 14 | 40 | NW..... | 600 |
| Fort Bragg, N. C..... | 23 | 42 | W..... | 1,500 |
| Chanute Field, Ill..... | 14 | 47 | WNW... | 500 |
| Due West, S. C..... | 14 | 40 | W..... | 5,700 |
| Do..... | 16 | 52 | WNW... | 5,300 |
| Do..... | 17 | 40 | WNW... | 6,500 |
| Edgewood Arsenal, Md..... | 15 | 40 | NW..... | 350 |
| Kelly Field, Tex..... | 26 | 42 | SW..... | 2,000 |
| Fort Scott, Ill..... | 5 | 41 | WSW... | 2,300 |
| Lansing, Mich..... | 23 | 42 | WNW... | 5,100 |
| Washington, D. C..... | 14 | 49 | W..... | 2,100 |
| Camp Lewis, Wash..... | 17 | 40 | S..... | 1,500 |

On the 3d the observer at Due West made the following note in connection with the kite flight of that day:

Definite NE.-SW. squall line in NW. at 9:45 a. m. with ugly wind-torn clouds and rain curtain. Roll cloud above reel house at 10:01 a. m. Kite No. 17 veered rapidly and squall wind reached it at 10:05 but upper wind remained WSW.

It seems probable that the condition described was of a comparatively local nature. The actual arrival of the high-pressure area and its attendant cold wave, which at the time was moving in from the west, did not occur

until about 3 p. m. or five hours later, as shown by the temperature and wind records.

Somewhat similar conditions prevailed at Drexel on the 5th-6th when a diurnal series of kite flights was made. At the beginning of the series at 8 a. m. on the 5th the surface wind was SSW. and veered gradually to W. by 5 p. m. At 6 p. m. it suddenly changed to NNW. as a result of the approach of a high-pressure area. The kite record made at this time clearly shows that this northerly wind first arrived at the surface and then successively in the higher levels. The records also indicate that the temperature drop, although considerable at the surface, did not extend above 1,200 m. altitude which is about the average height at which diurnal temperature changes cease.

A series of kite flights was obtained at Ellendale on the 16th-17th during abnormally high-pressure conditions. Pressure had been high over this region since the 14th. The magnitude of this high-pressure area is well shown by its persistence to at least 2,000 m. on the free-air pressure map for that level. From the kite records at Ellendale and Drexel it is found that this persistence extended even to 2,500 m., the pressure to this level remaining higher over Ellendale than over Drexel. The temperature gradient throughout this series had a lapse rate considerably less than was found for anticyclones for Drexel.¹ The average temperature for the series at 2,500 m. was 2.4° C. higher than the average at the surface. The relative humidity decreased from about 85 per cent at the surface to between 40 and 50 per cent in the upper levels from the beginning of the series to 6 p. m. After that time the decrease with altitude diminished with increasing cloudiness until the 7th flight when a humidity of 93 per cent was recorded, at 1,700 m., the highest level reached in this flight. The 8th and last flight indicated a marked decrease above the cloud layer, the humidity dropping to less than 10 per cent above 2,000 m.

In connection with the severe storm of the 13th-14th the following remarks of the official in charge at the Ellendale station are of special interest:

An extreme blizzard condition developed on the morning of the 13th and held control until toward late afternoon of the 14th. During the 13th, station duties were extreme, and going the short distance to and from the reel house there was danger of becoming lost in the storm. Only one kite was put up in the storm this day and it required two men to pull it down. While the altitude was low it was the greatest possible to obtain, the wind velocity being about 36 m. p. s. On the 14th the blizzard conditions moderated somewhat, although during the flight objects were not visible for more than 600 meters along the ground and the temperature was about -25° C. As the wind was less aloft we were able to obtain a higher flight on the 14th. Snow entered the reel house so that the reel and all objects were covered with about 2 inches of snow and it was necessary to use a steel wire brush to clean the cog-wheels before the reel could be operated. The ring switch under the reel house operated successfully although it was covered with about 3 inches of snow. This snow was so fine, that, driven by a gale, it passed in one part of our office building through the wall by way of the outside weatherboarding and sheathing and through the grooving of the boards forming the inside walls of the office and there along the joining point of the boards clotted and hung downward for about an inch. Between the storm windows and our inside windows the snow filled the space so that only the upper half was open. The snow froze to the eyelashes of the men until their eyes were blinded. On the mornings of the 13th and 14th it was hardly possible to reach the station and would not have been at all safe except for being able to follow the power line leading to the station from Ellendale. One could not see between the power line poles and a house could not be seen 75 meters away during the afternoon of the 14th.

¹ Vertical temperature distribution in the lowest 5 km. of cyclones and anticyclones. By W. R. Gregg, *MO. WEATHER REV.*, 47: 647-648.

TABLE 1.—Free-air temperatures, relative humidities, and vapor pressures during February, 1923.

| Altitude, m. s. l. (m.) | TEMPERATURE (°C.). | | | | | | | | | | | |
|-------------------------------|-----------------------------|-----------------------------|-----------------------|-----------------------------|-------------------------|-----------------------------|----------------------------|-----------------------------|-------------------------|-----------------------------|----------------------------|-----------------------------|
| | Broken Arrow, Okla. (233m.) | | Drexel, Nebr. (396m.) | | Due West, S. C. (217m.) | | Ellendale, N. Dak. (444m.) | | Groesbeck, Tex. (141m.) | | Royal Center, Ind. (225m.) | |
| | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. |
| Surface.. | 3.4 | -1.6 | -6.3 | -1.9 | 9.0 | -0.9 | -13.7 | -2.6 | 9.4 | -0.8 | -5.4 | -3.1 |
| 250..... | 3.3 | -1.6 | ..... | ..... | 8.8 | -0.9 | ..... | ..... | 9.1 | -0.7 | -5.6 | -3.1 |
| 500..... | 1.5 | -1.8 | -6.8 | -1.9 | 7.3 | -1.0 | -13.8 | -2.7 | 8.4 | -0.4 | -7.8 | -3.4 |
| 750..... | 0.8 | -1.5 | -7.7 | -2.4 | 6.3 | -1.1 | -13.7 | -3.0 | 8.2 | -0.3 | -8.6 | -3.4 |
| 1,000..... | 0.5 | -1.4 | -7.7 | -3.0 | 5.6 | -1.1 | -13.1 | -2.9 | 7.4 | -0.8 | -8.8 | -3.2 |
| 1,250..... | 0.4 | -1.3 | -7.5 | -3.4 | 5.0 | -0.9 | -12.5 | -2.9 | 6.6 | -1.0 | -9.4 | -3.2 |
| 1,500..... | -0.2 | -1.2 | -7.5 | -3.3 | 4.5 | -0.7 | -12.4 | -3.0 | 5.9 | -1.0 | -9.6 | -3.0 |
| 2,000..... | -1.6 | -1.2 | -8.2 | -3.0 | 2.4 | -0.9 | -13.4 | -2.9 | 5.0 | -0.1 | -10.2 | -2.5 |
| 2,500..... | -3.7 | -1.0 | -10.0 | -2.7 | -0.3 | -1.0 | -15.2 | -2.7 | 3.3 | +0.3 | -11.9 | -2.7 |
| 3,000..... | -6.2 | -1.0 | -12.2 | -2.4 | -2.3 | -1.0 | -18.2 | -3.0 | 0.8 | +0.2 | -13.7 | -2.3 |
| 3,500..... | -7.6 | -0.2 | -14.6 | -2.1 | -4.9 | -1.7 | -20.3 | -2.9 | -2.0 | -0.3 | -15.7 | -1.8 |
| 4,000..... | -10.4 | 0.0 | -16.0 | -0.7 | ..... | ..... | -23.1 | -2.7 | -1.0 | +0.1 | -18.5 | -1.8 |
| 4,500..... | ..... | ..... | ..... | ..... | ..... | ..... | -26.5 | -3.3 | -5.5 | +0.3 | ..... | ..... |
| 5,000..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | -8.1 | +0.3 | ..... | ..... | ..... |

RELATIVE HUMIDITY (PER CENT).

| | | | | | | | | | | | | |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|----|-------|-------|-------|
| Surface.. | 62 | -4 | 71 | -6 | 66 | -4 | 88 | +6 | 80 | +5 | 79 | +2 |
| 250..... | 62 | -4 | ..... | ..... | 66 | -4 | ..... | ..... | 78 | +5 | 79 | +2 |
| 500..... | 61 | -4 | 70 | -6 | 65 | -3 | 85 | +4 | 72 | +2 | 81 | +4 |
| 750..... | 58 | -4 | 67 | -5 | 64 | -3 | 74 | +1 | 70 | +4 | 78 | +3 |
| 1,000..... | 55 | -2 | 63 | -4 | 62 | -4 | 68 | -3 | 72 | +10 | 74 | +3 |
| 1,250..... | 53 | 0 | 61 | -2 | 62 | -3 | 63 | -4 | 72 | +13 | 71 | +4 |
| 1,500..... | 53 | +2 | 58 | -1 | 61 | -2 | 58 | -5 | 67 | +12 | 67 | +4 |
| 2,000..... | 49 | 0 | 57 | +2 | 59 | 0 | 55 | -6 | 55 | +7 | 57 | +1 |
| 2,500..... | 45 | -3 | 55 | +2 | 56 | -3 | 56 | -6 | 50 | +6 | 53 | -1 |
| 3,000..... | 40 | -4 | 51 | -2 | 53 | -2 | 54 | -6 | 48 | +6 | 49 | -5 |
| 3,500..... | 34 | -6 | 46 | -7 | 54 | +1 | 44 | -14 | 50 | +10 | 43 | -11 |
| 4,000..... | 32 | -6 | 43 | -7 | ..... | ..... | 39 | -18 | 43 | +8 | 39 | -14 |
| 4,500..... | ..... | ..... | ..... | ..... | ..... | ..... | 41 | -13 | 24 | +2 | ..... | ..... |
| 5,000..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 22 | +2 | ..... | ..... | ..... |

TABLE 2.—Free-air resultant winds (m. p. s.) during February, 1923.

| Altitude, m. s. l. (m.) | Broken Arrow, Okla. (233m.) | | | | Drexel, Nebr. (396m.) | | | | Due West, S. C. (217m.) | | | | Ellendale, N. Dak. (444m.) | | | | Groesbeck, Tex. (141m.) | | | | Royal Center, Ind. (225m.) | | | |
|-------------------------------|--------------------------------|-------|--------------|-------|--------------------------|-------|--------------|-------|----------------------------|-------|--------------|-----------|-------------------------------|-----------|--------------|-----------|----------------------------|-----------|--------------|-----------|-------------------------------|-----------|--------------|-------|
| | Mean. | | 5-year mean. | | Mean. | | 8-year mean. | | Mean. | | 2-year mean. | | Mean. | | 6-year mean. | | Mean. | | 5-year mean. | | Mean. | | 5-year mean. | |
| | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | Dir. | Vel. | | |
| Surface..... | N. 27° E. | 2.1 | N. 19° W. | 0.6 | N. 67° W. | 2.7 | N. 66° W. | 1.6 | S. 78° W. | 1.8 | S. 75° W. | 1.7 | N. 71° W. | 6.3 | N. 48° W. | 3.8 | N. 40° E. | 1.8 | N. 38° W. | 0.3 | S. 80° W. | 2.3 | S. 81° W. | 2.2 |
| 250..... | N. 30° E. | 2.1 | N. 22° W. | 0.4 | ..... | ..... | ..... | ..... | S. 79° W. | 2.0 | S. 73° W. | 1.8 | ..... | ..... | N. 61° E. | 2.1 | S. 84° W. | 0.2 | S. 86° W. | 2.3 | S. 79° W. | 2.4 | ..... | ..... |
| 500..... | N. 43° E. | 1.6 | N. 34° W. | 0.4 | N. 62° W. | 3.5 | N. 71° W. | 2.2 | S. 78° W. | 3.4 | S. 82° W. | 3.5 | N. 72° W. | 6.8 | N. 51° W. | 4.0 | S. 74° E. | 2.4 | S. 30° W. | 1.0 | S. 86° W. | 3.8 | S. 67° W. | 3.6 |
| 750..... | N. 67° E. | 0.5 | S. 33° W. | 1.6 | N. 58° W. | 6.7 | N. 70° W. | 4.4 | S. 75° W. | 4.8 | S. 80° W. | 5.2 | N. 71° W. | 9.5 | N. 56° W. | 5.4 | S. 46° E. | 1.9 | S. 40° W. | 2.0 | S. 88° W. | 6.3 | S. 70° W. | 5.3 |
| 1,000..... | N. 83° W. | 2.0 | S. 61° W. | 2.7 | N. 53° W. | 8.6 | N. 67° W. | 5.8 | S. 76° W. | 5.8 | S. 76° W. | 6.6 | N. 67° W. | 9.3 | N. 53° W. | 6.0 | S. 7° W. | 2.8 | S. 57° W. | 3.2 | ..... | 9.4 | S. 76° W. | 6.8 |
| 1,250..... | N. 80° W. | 2.0 | S. 86° W. | 3.6 | N. 55° W. | 10.5 | N. 66° W. | 7.0 | S. 81° W. | 6.9 | S. 81° W. | 8.3 | N. 66° W. | 10.5 | N. 55° W. | 7.0 | S. 15° W. | 3.6 | S. 65° W. | 4.3 | N. 85° W. | 10.0 | S. 82° W. | 8.2 |
| 1,500..... | N. 75° W. | 4.3 | N. 88° W. | 4.5 | N. 56° W. | 12.1 | N. 66° W. | 9.0 | S. 77° W. | 8.9 | S. 77° W. | 10.1 | N. 64° W. | 11.2 | N. 60° W. | 8.3 | S. 35° W. | 4.3 | S. 77° W. | 5.5 | N. 76° W. | 11.1 | S. 86° W. | 9.6 |
| 2,000..... | N. 76° W. | 6.8 | N. 79° W. | 6.3 | N. 62° W. | 15.7 | N. 69° W. | 10.8 | S. 82° W. | 13.9 | S. 80° W. | 13.9 | N. 62° W. | 13.5 | N. 65° W. | 10.4 | S. 43° W. | 5.6 | S. 82° W. | 7.7 | N. 74° W. | 12.6 | N. 89° W. | 11.1 |
| 2,500..... | ..... | 12.3 | N. 75° W. | 7.9 | N. 62° W. | 15.7 | N. 69° W. | 13.0 | S. 83° W. | 15.4 | S. 82° W. | 15.8 | N. 63° W. | 15.1 | N. 68° W. | 12.7 | S. 62° W. | 5.1 | S. 88° W. | 8.9 | N. 62° W. | 16.8 | N. 84° W. | 13.5 |
| 3,000..... | N. 81° W. | 16.7 | N. 32° W. | 12.0 | N. 69° W. | 15.4 | N. 74° W. | 14.9 | S. 84° W. | 16.1 | S. 84° W. | 17.0 | N. 65° W. | 17.2 | N. 71° W. | 14.2 | S. 81° W. | 9.1 | S. 86° W. | 11.5 | N. 56° W. | 16.8 | N. 85° W. | 14.5 |
| 3,500..... | N. 70° W. | 16.3 | N. 68° W. | 14.7 | N. 72° W. | 16.7 | N. 73° W. | 16.3 | N. 80° W. | 21.7 | N. 39° W. | 20.1 | N. 66° W. | 15.5 | N. 73° W. | 13.3 | S. 84° W. | 11.3 | S. 87° W. | 12.9 | N. 51° W. | 18.8 | N. 82° W. | 18.0 |
| 4,000..... | N. 57° W. | 17.4 | N. 65° W. | 13.0 | N. 70° W. | 13.8 | N. 81° W. | 16.2 | ..... | ..... | ..... | N. 68° W. | 18.4 | N. 69° W. | 14.0 | S. 88° W. | 12.8 | N. 87° W. | 13.4 | N. 39° W. | 18.0 | N. 80° W. | 18.3 | |
| 4,500..... | N. 68° W. | 20.7 | N. 58° W. | 18.2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | N. 71° W. | 19.0 | N. 67° W. | 14.7 | N. 80° W. | 15.6 | N. 78° W. | 15.0 | ..... | ..... | ..... | ..... |  |
| 5,000..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |  |

THE WEATHER ELEMENTS.

By P. C. DAY, Meteorologist, in Charge of Division.

PRESSURE AND WINDS.

The disturbed atmospheric conditions, so persistent during the first two months of the present winter, continued into February, although some reduction in the number of cyclones was noted, but anticyclones were numerous and frequently of marked strength.

The most important anticyclone of the month appeared in the far Canadian Northwest on the morning of the 12th, and during the following two days it gathered strength, moved southward, and by the morning of the 14th was central over the upper Missouri Valley where

TABLE 1.—Free-air temperatures, relative humidities, and vapor pressures during February, 1923—Continued.

| Altitude, m. s. l. (m.) | VAPOR PRESSURE (mb.). | | | | | | | | | | | |
|-------------------------------|-----------------------------|-----------------------------|-----------------------|-----------------------------|-------------------------|-----------------------------|----------------------------|-----------------------------|-------------------------|-----------------------------|----------------------------|-----------------------------|
| | Broken Arrow, Okla. (233m.) | | Drexel, Nebr. (396m.) | | Due West, S. C. (217m.) | | Ellendale, N. Dak. (444m.) | | Groesbeck, Tex. (141m.) | | Royal Center, Ind. (225m.) | |
| | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. | Mean | De-parture from 5-yr. mean. |
| Surface.. | 5.06 | -0.99 | 2.81 | -0.85 | 8.33 | -10.0 | 2.09 | -0.31 | 10.41 | +0.49 | 3.42 | -0.80 |
| 250..... | 5.02 | -0.98 | ..... | ..... | 8.23 | -0.98 | ..... | ..... | 9.03 | +0.49 | 3.36 | -0.80 |
| 500..... | 4.38 | -0.94 | 2.68 | -0.80 | 7.48 | -0.84 | 2.00 | -0.38 | 8.86 | +0.44 | 2.94 | -0.72 |
| 750..... | 3.94 | -0.75 | 2.42 | -0.72 | 6.94 | -0.85 | 1.72 | -0.49 | 8.38 | +0.65 | 2.72 | -0.60 |
| 1,000..... | 3.72 | -0.48 | 2.20 | -0.75 | 6.48 | -0.82 | 1.66 | -0.49 | 8.00 | +1.01 | 2.53 | -0.54 |
| 1,250..... | 3.52 | -0.28 | 2.14 | -0.67 | 6.18 | -0.62 | 1.63 | -0.46 | 7.39 | +1.10 | 2.27 | -0.47 |
| 1,500..... | 3.27 | -0.18 | 2.01 | -0.58 | 5.73 | -0.53 | 1.41 | -0.55 | 6.31 | +0.86 | 2.06 | -0.38 |
| 2,000..... | 2.64 | -0.19 | 1.74 | -0.43 | 4.50 | -0.38 | 1.19 | -0.50 | 4.38 | +0.27 | 1.58 | -0.37 |
| 2,500..... | 2.04 | -0.34 | 1.42 | -0.37 | 3.33 | -0.55 | 1.00 | -0.43 | 3.65 | +0.35 | 1.35 | -0.32 |
| 3,000..... | 1.41 | -0.47 | 1.07 | -0.40 | 2.70 | -0.37 | 0.64 | -0.45 | 3.12 | +0.55 | 1.15 | -0.23 |
| 3,500..... | 1.04 | -0.45 | 0.69 | -0.46 | 2.58 | -0.36 | 0.34 | -0.47 | 2.79 | +0.69 | 0.95 | -0.12 |
| 4,000..... | 0.78 | -0.34 | 0.45 | -0.39 | ..... | ..... | 0.21 | -0.44 | 2.19 | +0.46 | 0.74 | -0.08 |
| 4,500..... | ..... | ..... | ..... | ..... | ..... | ..... | 0.12 | -0.37 | 0.99 | +0.09 | ..... | ..... |
| 5,000..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0.80 | +0.09 | ..... | ..... |

sea-level pressure was above 31 inches, the highest observed, 31.20 inches, being reported from Miles City, Mont. This anticyclone, gradually moving eastward and south-eastward, dominated the weather in nearly all portions of the United States and Canada until near the end of the second decade. Severe cold was experienced in nearly all the States during that period, and cyclonic activity was greatly reduced, the storms usually entering the North Pacific States, and other sections being unable to penetrate the high pressure barriers.

The cyclones were usually not severe except during the 12th to 14th, when a low-pressure area passing over the Great Lakes and other northern districts, in conjunction with rapidly rising pressure to the westward caused heavy drifting snows, high winds, and severe blizzard conditions from Minnesota eastward to New York.